College Mathematics
ways to describe change

We can describe a change by comparing the new value to the old value:
   If the new value is higher, we say there is an increase.
   If the new value is lower, we say there is a decrease.

Suppose a price goes up from $8 to $10.
The there are several ways we can think about this change:

How much was added to the price? \[8 + ? = 10\]
The new price is \$2 more than the old price.

Is that increase small or large (relative to the original price)? \[2 \text{ is what } \% \text{ of } 8?\]
The new price is 25\% more than the old price.

Is the new price small or large (relative to the original price)? \[10 \text{ is what } \% \text{ of } 8?\]
The new price is 125\% of the old price.

By what was the price multiplied? \[8 \times ? = 10\]
The new price is 1.25 times the old price.

Example 1: $20 \rightarrow $28

$28 is $8 more than $20. \[8 + 8 = 28\]
$28 is 40\% more than $20. \[8 \times 40\% = 28\]
$28 is 140\% of $20. \[140\% \times 20 = 28\]
$28 is 1.40 times $20. \[1.40 \times 20 = 28\]

Example 2: $20 \rightarrow $60

$60 is $40 more than $20. \[8 + 8 = 28\]
$60 is 200\% more than $20. \[8 \times 200\% = 28\]
$60 is 300\% of $20. \[300\% \times 20 = 28\]
$60 is 3 times $20. \[3 \times 20 = 28\]

Example 3: $20 \rightarrow $17

$17 is $3 less than $20. \[20 - 3 = 17\]
$17 is 15\% less than $20. \[20 - 15\% \times 20 = 17\]
$17 is 85\% of $20. \[85\% \times 20 = 17\]
$17 is 0.85 times $20. \[0.85 \times 20 = 17\]